# PowerConnect **6248** Switch

## 48 port stackable switch with advanced layer 3 technology

The PowerConnect™ 6248 48-port Gigabit Ethernet Layer 3 switch delivers significant rack density and advanced core switching capabilities, including:

- Optional 10 Gigabit Ethernet uplinks
- High Performance Stacking for up to 12 systems
- Support for 10GBase T and SFP+ 10GE Modules

**Advanced features with superb performance**

The PowerConnect 6248 delivers a comprehensive feature set with superb performance for the small to medium enterprise. This 48-port Giga bit Ethernet Layer 3 switch is stackable and offers optional 10 Gigabit Ethernet uplinks and supports the latest version of the Internet Protocol—IPv6—enabling broader worldwide scalability. The PowerConnect 6248 offers Enterprise class availability with failover times that provide for sub-250ms failover of any stacked switch, including master failure under all configurations. Furthermore, high performance stacking is supported for up to twelve systems, and advanced security and Quality of Service (QoS) features make this switch ideal for applications such as Voice over IP, Layer 3 routing, High Performance Cluster Computing (HPCC), and iSCSI storage. Advanced monitoring functions include sflow support, SNMP capabilities and a full GUI interface with graphical reporting.

In the event of a switch failure, high availability functions maintain traffic flow in the stack, including mission-critical voice and storage sessions.

**Lifetime Limited Warranty**

PowerConnect™ switches not only provide the quality, reliability and capability you expect from Dell™, but also the peace of mind that guarantees hardware for life — a true Lifetime Warranty.



**High Density**

Delivering significant rack density, the PowerConnect 6248 is designed to give users the flexibility to maximize server and workstation connectivity in a 1U form factor. Up to 576 servers and/or clients can be connected in a stack of twelve 62xx series switches to provide the maximum density, flexibility and manageability. And the stack is built on a 10/100/1000BASE-T Gigabit Ethernet switch.



**High-Performance Stacking**

The PowerConnect 6248 switch supports up to four 10 Gigabit fiber (SFP+) & two 10GBase-T copper Ethernet uplinks for connectivity directly to 10GE servers, routers, enterprise backbones and data centers.



**Optional 10 Gigabit Ethernet**

The PowerConnect 6248 switch supports up to four 10 Gigabit fiber and two 10GBase-T copper Ethernet uplinks for connectivity directly to 10GE servers.

**Advanced Layer 3 Capabilities**

The PowerConnect 6248 supports advanced Layer 3 routing and multicast protocols to help reduce congestion and manage traffic in the network. Frequently used LAN routing protocols such as RIPv1/v2, OSPFv2/v3, VRRP, IGMP, DVMRP, PIM and LLDP-MED are also supported.

### Advanced QoS

The PowerConnect 6248 offers flexibility in QoS by giving network administrators the ability to prioritize time-critical network traffic based on a variety of user-defined criteria. Administrators can expedite traffic based on L2 or L3 information, such as IP QoS, and provide greater control over traffic flow within the network. Voice virtual LANs (VLANs) are provided specifically for voice over IP (VoIP) applications.



### Advanced Security

Access Control Lists (ACLs) can be supported on the switch, allowing the user to perform deep packet inspection. 802.1x port authentication offers both single and multiple host access, including a captive portal option for guest access. Further security is provided through Denial of Service (DoS) Attack Prevention, whereby the switch can help protect against common network attacks and CPU attacks.



### IPv6 Certified

IPv6 is version six of the Internet Protocol that has been in development for over 20 years. IPv6 has been designed to address IP address limitations of previous versions of the Internet Protocol, enabling an increased number of unique IP addresses for broader scalability worldwide now and in the future.

## Port Attributes

- 48 10/100/1000BASE-T auto-sensing Gigabit Ethernet switching ports
  4 SFP combo ports for fiber media support
  10 Gigabit Ethernet uplink modules (optional)
  48Gbps Stacking module (optional)
  Auto-negotiation for speed, duplex mode and flow control
  Auto MDI/MDIX
  Port mirroring
  Flow-based port mirroring
  Broadcast storm control
  sFlow
  iSCSI Auto Configuration

## Performance

- Switch Fabric Capacity up to 184 Gb/s
  Forwarding Rate up to 95 Mpps
  Up to 8,000 MAC Addresses
  256MB of CPU SDRAM
  32MB of Flash Memory

## Availability

- Spanning Tree (IEEE 802.1D) and Rapid Spanning Tree (IEEE 802.1w) with Fast Link Support
  Multiple spanning trees (IEEE 802.1s)
  Supports Virtual Redundant Routing Protocol (VRRP)
  External redundant power support with PowerConnect RPS-600 (sold separately)
  Cable diagnostics
  Optical transceiver diagnostics
  Link Dependency – Can up/down links based on other port events

  **Layer 3 Routing Protocols**
  Static routes Routing Information Protocol (RIP) v1/v2
  Open Shortest Path First (OSPF) v1/v2/v3
  Classless Inter-Domain Routing (CIDR)
  Internet Control Message Protocol (ICMP)
  ICMP Router Discover Protocol (IRDP)
  Virtual Redundant Routing Protocol (VRRP)
  Address Resolution Protocol (ARP)
  Internet Group Management Protocol (IGMP) v2
  Distance-Vector Multicast Routing Protocol (DVMRP)
  DHCP – Helper/Relay/Snooping

  **Layer 3 Routing Performance**

Up to 224 IPv4 routes, up to 128 IPv6 routes

Up to 128 RIP Routing Interfaces

Up to 128 OSPF Routing Interfaces; up to128 OSPF Areas; up to 128 Routing Interfaces per OSPF Area; up to 32 routes for ECMP Routing; up to 2 next hops per ECMP

Up to 128 VLAN Routing Interfaces

Up to 256 Multicast Forwarding Entries

Up to 896 ARP entries; Up to 512 NDP entries

## VLAN

- VLAN support for tagging and port-based as per IEEE 802.1Q

  Double VLAN tagging (QinQ)

  Up to 1024 VLANs supported

  Dynamic VLAN with GVRP support

  Voice VLAN support

  Custom Protocol VLANs

## Quality of Service

- Layer 2 Trusted Mode (IEEE 802.1p tagging)

  Layer 3 Trusted Mode (DSCP)

  Layer 4 Trusted Mode (TCP/UDP)

  Advanced Mode using Layer 2/3/4 flow-based Policies, including metering/rate limiting, marking and bandwidth guarantees; up to 100 ACLs can be used for QoS flow identification via Class-maps

  8 Priority Queues per Port

  Adjustable Weighted-Round-Robin (WRR) and Strict Queue Scheduling

  Port-based QoS Services Mode

  Flow-based QoS Services Mode

## Multicast

- Static IP Multicast

  Dynamic Multicast Support – 256 Multicast groups supported in IGMP Snooping

  IGMP snooping for IP multicast support

  IGMP Querier

  Protocol Independent Multicast (PIM-DM, PIM-SM)

## Security

- IEEE 802.1x based edge authentication -- supports single and multiple host access, guest access, voice authorization, and Microsoft Active Directory, and multiple authenticators per port.

  Switch access password protection

  User-definable settings for enabling or disabling Web, SSH, Telnet, SSL management access

Port-based MAC Address alert and lock-down

IP Address filtering for management access via Telnet, HTTP, HTTPS/SSL, SSH and SNMP

RADIUS and TACACS+ remote authentication for switch management access

Up to 100 Access Control Lists (ACLs) supported; up to 127 Access Control Entries (ACEs) per ACL or per port

SSLv3 and SSHv2 encryption for switch management traffic

Management access filtering via Management Access Profiles

Custom Login Banners

Dynamic ARP Inspection

Captive Portal Authentication

## Other Switching

- Link Aggregation with support for up to 18 static aggregated links, 8 dynamic aggregated links per switch and up to 8 member ports per aggregated link; LACP support (IEEE 802.3ad), LLDP-MED Support for unicast NLB (multicast NLB not supported)

## Management

- Web-based management interface

  Industry-standard CLI accessible via Telnet or Local Serial Port

  SNMPv1, SNMP v2c and SNMPv3 supported

  4 RMON groups supported (history, statistics, alarms and events)

  TFTP transfers of firmware and configuration files

  Dual Firmware images on-board

  Multiple Configuration file upload/download supported

  Statistics for error monitoring and performance optimization including port summary tables

  BootP/DHCP IP address management supported

  Syslog remote logging capabilities

  Temperature sensors for environmental monitoring

## Chassis

- 440 x 387 x 43.2 mm (W x D x H)

  17.3" x 15.2" x 1.7"

  1U, rack-mounting kit included

  Approximate weight (without modules): 6.06kg, 13.4lbs

  Approximate weight (with modules): 6.20kg, 13.7lbs

## Hardware

- 256MB of CPU SDRAM
  32MB of Flash Memory

## MIB Support

- RFC 1213 MIB II
  RFC 1215 Standard Traps
  RFC 1286 Bridge MIB
  RFC 1442 SMIv2 (SNMPv2 MIB)
  RFC 1451 Manager-to-Manager MIB
  RFC 1492 TACACS+
  RFC 1493 Definitions of Managed Objects for Bridges
  RFC 1573 Evolution of Interfaces
  RFC 1643 Etherlike MIB
  RFC 1757 Remote Network Monitoring (RMON) MIB
  RFC 1907 SNMP v2 MIB
  RFC 2011 Internet Protocol (IP) MIB using SMIv2
  RFC 2012 Transmission Control Protocol (TCP) MIB using SMIv2
  RFC 2013 User Datagram Protocol (UDP) MIB using SMIv2
  RFC 2233 Interfaces Group using SMIv2
  RFC 2618 RADIUS MIB
  RFC 2665 Ethernet-like Interface Types MIB
  RFC 2666 Identification of Ethernet Chip sets
  RFC 2674 MIB for Bridge with Traffic Classes, Multicast Filtering and VLAN Extension
  (IEEE802.1p/q MIB)
  RFC 2737 ENTITY-MIB
  RFC 2819 RMON MIB
  RFC 2863 Interface Evolution

## Standards Supported

- IEEE 802.1AB
  IEEE 802.1D
  IEEE 802.1Q
  IEEE 802.1p
  IEEE 802.1w
  IEEE 802.1x
  IEEE 802.2
  IEEE 802.3
  IEEE 802.3I
  IEEE 802.3u
  IEEE 802.3x
  IEEE 802.3z

IEEE 802.ab
IEEE 802.3ac
IEEE 802.3ad
IEEE 802.3ae
IEEE 802.3ak

## Environmental Operating Conditions

- Operating Temperature: 0º C to 45º C
  Storage Temperature: -20º C to 70º C
  Operating Relative Humidity: 10% to 90% non-condensing
  Storage Relative Humidity: 10% to 95% non-condensing

## Power

- 100-240VAC, 50-60Hz
  Optional Redundant power through RPS-600

**Supporting your unique environment**

Whether you need to support an IT staff or end users, Dell™ ProSupport™ will help you remove barriers so you can get back to work. You'll receive:

- 24x7x365 direct access to Dell Expert Centers via email, chat and phone support
- Mission-Critical Response Options, including ability to self-designate severity level 1
- Hardware and software diagnostics and troubleshooting, including direct Dell OEM support and third-party collaborative support
- "How-to" support on popular software applications such as Norton™ AntiVirus, Microsoft® Office, Microsoft® Small Business Server, Intuit® QuickBooks®ʼ Adobe® Photoshop® and Adobe® Acrobat®.
- Skip the script and save time with tech-to-tech support
- Access to tools and resources to certify your technicians that allows them to self-dispatch parts and labor
- Award winning support from Global Command Centers for dispatch monitoring and end-to-end case management for critical situations or natural disasters

Further maximize the availability and stability of your infrastructure through Dell Support Services enhanced support options, such as asset and data protection, Specialized On-site* Services, Remote Advisory Services. Streamline patch management and get detailed reporting with Proactive Maintenance. Get advice by telephone access to technical expertise on applications and solutions such as Microsoft® Exchange, Virtualization and more. And for more complex IT environments, choose the Enterprise-Wide Contract option, which provides a designated Service Delivery Manager, performance benchmarking, proactive planning and custom reporting.

**Simplify your IT infrastructure**

Dell ProConsult™ Global Infrastructure Consulting Services can help integrate your new enterprise hardware into an existing or evolving IT infrastructure. We can provide guidance whether you're adding single or multiple servers, a storage area network or virtualizing your environment. We can also help you enhance the overall performance of your IT infrastructure and data center by consolidating software and hardware, reviewing data usage to optimize the environment, developing a business continuity plan and by helping you migrate to standards-based technologies.

We utilize skilled solution architects, innovative tools, automated analysis and our own intellectual property to give customers rapid insight into the root causes of unnecessary complexity. We seek better answers than traditional service models, based on our belief that solving problems should not need armies of people. Our strategy is to help customers quickly identify high-impact, short-duration projects that deliver ROI and free up resources to obtain competitive advantage. The result is practical, action-oriented plans with specific, predictable, measurable outcomes. From data center optimization to server virtualization to systems management, our consulting services help you build a more efficient enterprise.

**Accelerating deployment**

Dell helps simplify implementation with deployment services that speed time to production of new hardware and IT solutions. During the initial system-build of your server, we can customize software and hardware to match your specific requirements. By helping you rapidly deploy new capabilities while minimizing disruptions, we can contribute to improved efficiencies and lower costs.

**Empowering your team**

Our education services provide training and certification courses to help you and your team better manage and use your new hardware so you can reap the full benefits of standards-based technologies.

**Lifetime Limited Warranty***

Select PowerConnect™ products carry a Lifetime Limited Hardware Warranty* with Basic Hardware Service for as long as you own the product. Repair or replacement does not include configuration or other advanced service and support provided by Dell ProSupport Services. The PowerConnect products covered by the Lifetime Limited Hardware warranty* are: the PowerConnect™ 2800 Series, the PowerConnect™ 3500 Series, the PowerConnect™ 5500 Series, the PowerConnect™ 6200 Series and the PowerConnect™ 8000 Series rack switches.